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DWIGHT L. BOLINGER

Generality, Gradience, and the All-or-None

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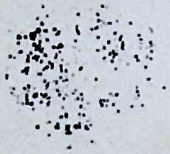

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GENERALITY, GRADIENCE, AND THE ALL-OR-NONE

by

DWIGHT L. BOLINGER
UNIVERSITY OF COLORADO

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विद्या निवास मिश्र
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1

THE ALL-OR-NONE

One thing more than all else together has set the compass for contemporary linguistics: the discovery that a continuous stream of speech can be divided into systematically recurring segments that succeed one another in time. Segmental analysis has swept the field so triumphantly that for a number of years nothing else has seemed of much importance in language. All that matters, it appeared, could be formalized in statements of presence or non-presence, or of *A* versus *B*, and if anything of obvious significance did not readily fit this scheme, the lack was in us as observers, not in it as a datum.

The theoretical tenets that follow from the success of segmentation are simple ones and have been stated many times, most forthrightly, perhaps, in the following by Martin Joos: "Ordinary mathematical techniques fall mostly into two classes, the continuous (e.g. the infinitesimal calculus) and the discrete or discontinuous (e.g. finite group theory). Now it will turn out that the mathematics called 'linguistics' belongs in the second class. It does not even make any compromise with continuity, as does statistics, or infinite-group theory. Linguistics is a quantum mechanics in the most extreme sense. All continuity, all possibilities of infinitesimal gradation, are shoved outside of linguistics in one direction or the other."[1] He has in mind principally phonetics, which we might say is shoved down, and semantics, which is shoved up.

Hockett puts it more succinctly: "In general..., if we find continuous-scale contrasts in the vicinity of what we are sure is language, we exclude them from language."[2] Likewise Roman

[1] "Description of Language Design", *Journal of the Acoustical Society of America*, 22.701–708 (1950), pp. 702–703.

[2] *A manual of phonology*, (Baltimore, 1955), p. 17.

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Jakobson: "Grammar, a real *ars obligatoria*, imposes upon the speaker its yes-or-no decisions."[3]

What with vigorous leadership and willing followership, the doctrine of discontinuity has found its fullest acceptance among American scholars. But not all of them have from the very first kept the pledge of total abstinence. When Stanley Newman described his "rhetorical accent" in English, he did it along lines of continuity, not discreteness. This accent, he says, "is characterized primarily by quantitative features. In *He lives in a la·rge house*, the word *large* ... may be stretched to an abnormal length ... The rhetorical accent is subject to gradations ... [with] overtones of awe, amazement, admiration, and many other subtle and elusive shadings in attitude."[4]

Later, the very success of linguistic analysis came to put a strain on the theory of discontinuity as outsiders were attracted to it and asked themselves what significance it might have for them. For communications engineers it was made to order. Others, among them the psychologists, have asked questions that are hard to answer. One that is pertinent came recently from Howard Maclay and Charles Osgood, who suggest that the rejection of continuity may have been due to identifying it with a particular kind of continuity that is not really typical. The continuity that phonemics rescued us from was that of continuous variations in phonetic quality, the features that a spectrogram makes visible in the shape of formants and transitions. But these, they point out, are a special set. They are the ones that "are systematically related to language structure, since ... [they] may be translated into discrete phonemic categories by means of linguistic discovery methods. Hesitations" —these being the phenomena that interest the authors—"are not pre-linguistic in this sense; they function as auxiliary events which help to identify and circumscribe linguistic units, rather than as part of the raw data for which a structural statement must account." They are in "non-random relation to linguistic forms". So Maclay and Osgood ask "whether a structural statement" should not

[3] *American Anthropologist*, 61: 5, 2.141 (1959).
[4] "On the Stress System of English", *Word*, 2.171–187 (1946), pp. 172–173.

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"account for statistically relevant hesitations as it now does for continuously varying phonetic qualities", and in this way bring more emphasis on statistics in a field that up to now "has preferred to rely on [an] ... 'either-or' approach".[5]

Other recent declarations in favor of continuity are to be found in the fields of lexicon,[6] transformational analysis,[7] and dialectology.[8] These do not challenge the traditional recourse to discontinuity in phonemic analysis, but look to ways of handling other kinds of linguistic data that pour in on us in increasing volume as investigators leave the comparatively jagged terrain of recurrent partials and explore the smoother slopes that lie above. Where the basic units are concerned, most would still agree with R. B. Lees when he chides the "delusive notion that linguistics must surrender

[5] "Hesitation Phenomena in Spontaneous English Speech", *Word*, 15.19–44 (1959), esp. p. 39. For the phonetic continuum and devices to extricate us from it, see W. Haas, "Relevance in Phonetic Analysis", *Word*, 15.1-18 (1959).

[6] "One must reckon, then, with a continuum of subtly graded possibilities of matching [of degree of fusion in binomials such as *free and easy*, *to and fro*, *dead or alive*, etc.]." Yakov Malkiel, "Studies in Irreversible Binomials", *Lingua*, 8.113–160 (1959), p. 116. "Between these two extremes of literalness and symbolism there stretches a continuum of finely graded possibilities." *Ibid.*, p. 138.

Floyd Lounsbury moves in from the direction of anthropology. Writing on kinship usage—"A Semantic Analysis of Pawnee Kinship Usage", *Language*, 32.158–194 (1956)—he concludes his article with these remarks: "In some areas of lexicon, semantic structure may be so complex that it is impossible or unprofitable to approach it ... with Aristotelian class logic and the 'same or different' pragmatic test as the principal tools. It may become necessary to abandon the Aristotelian dichotomy of *A* vs. *not-A*... Continuous scales may be introduced in place of these sharp dichotomies ... and tests other than the simple 'same or different' may have to be devised."

[7] Zellig Harris, in "Co-occurrence and Transformation", *Language*, 33.283–340 (1957), is concerned (pp. 292–293) about how to test "for identity of co-occurrence ranges", how information may be elicited from informants about whether co-occurrence ranges are identical or not. "This is a very different type of experimental condition... The results involve a new measure: degree or type of acceptability (natural, uncomfortable, nonce-form); for example, if we are testing co-occurrents of *()ish*, an informant may be uncertain about *grandfatherish*, consider *deepish* uncomfortable, and *countryside-ish* a nonce-form, and reject *uncle-ish* or *wise-ish* outright."

[8] G. R. Cochrane distinguishes gradations in strength of correspondence between one dialect and another in *Word*, 15.78 (1959).

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its traditional 'all-or-none' view of occurrence for a 'probabilistic view in which we are concerned with the likelihood that one class will occur rather than another'".[9]

From the standpoint of what has become traditional in American linguistics, the question is not whether there are such things as continuous phenomena in parts of human behavior that lie close to linguistics—many would grant that there are—but whether such phenomena should be regarded as the object of linguistic study. It comes down more to a scheme of priorities than to a denial of possible ultimate importance: a higher value, for the present, is placed on phenomena that lend themselves to an all-or-none analysis. Later, when we get around to them, we may interest ourselves in peripheral matters and be better equipped to deal with them as a result of our earlier self-discipline—and there is always the hoped-for possibility that what looked to be continuous from a distance is actually discontinuous.

One can argue that there are as many faults as there are virtues in such an approach—that while taking in too much results in imprecision, taking in too little results in provincialism and loss of perspective: the field should be smaller because we want it to be exact, or it should be larger because without a theory of the whole it becomes circular. I do not intend to argue along these lines. What I want to consider is whether there are continuous phenomena permeating the very core of micro-micro-linguistics, whether microlinguists have played with them without realizing the nature of the stuff, fitting round pegs into square holes.

I believe that they have, that in practise microlinguistics has not been able to get along without continuous phenomena, so it has taken a small bite out of them, chewed some discontinuity into it, and let the rest go. Take the following from Pike's treatment of English stress: "There is a further phonemic degree of stress ... limited to superimposed usage. Phonetically it is EXTRA STRONG, and has the meaning of EMPHASIS, or exclamation ... There are an infinite variety of degrees of exclamatory stress. Rather than form-

[9] *Language*, 35.301 (1959).

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ing separate contrasting elements, with separate meanings, however, they are in GRADATION. Socially, the general amount of stress may have some significance, but once intensity reaches (at an indefinable boundary) the exclamatory stage, all degrees of it are within the same meaningful super-imposed phoneme."[10] Leaving aside the question of whether a phoneme can have "meaning" (and this may not represent the author's current view anyway), the trouble here is that if you find that ANY degree of stress contrasting one morpheme with another has some relevance to the notion of 'emphasis', you have nowhere to go. The bottom of stress has been sliced off; you have a phonemic stress-versus-nonstress on the one hand, and a non-phonemic stress-versus-stress on the other. In order to capture just what was needed for microlinguistics and no more, an artificial dichotomy has been introduced into what may well be a continuum, something that cannot safely be cut in two until its range has been explored, cannot be assumed to be discontinuous at one extreme merely because that suits the convenience of a discontinuous analysis.

What I want to do is to show a few of the unexpected ways in which the continuum calls the tune and the discontinuum is forced to dance. I shall draw examples from three areas: generality, length, and intonation. I take these because they reflect more than just imperfections in the observer or insufficiencies in his data. They are not continuous in the sense that they are indeterminate, of that order of things concerning which Pike says that "indeterminacy is an essential part of language."[11] Rather, their non-switching character, their continuity, has a function in communication. From them I believe that we can draw the moral that when one stops talking about switches and begins to talk about potentiometers, one does not necessarily cease talking about electrical systems.

[10] *The intonation of American English* (Ann Arbor, 1945), p. 85.
[11] *Texas Quarterly*, 2.49 (1959).

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2

GENERALITY AND AMBIGUITY

A continuum can be of two kinds: undifferentiated, in which the phenomena that fill the continuous space are homogeneous, and differentiated, in which the phenomena themselves are not homogeneous but have some function of RATE which is—for example, at one extreme the density is 1, at the opposite extreme 10, and at a point 55% of the way from 0 to 10 it is 5½. An example of an undifferentiated continuum is a confined gas theoretically free of gravitation, or is the semantic space of the word *apple*, which covers Macintosh and Jonathan equally and where the concepts "more" and "less" do not apply. An example of a differentiated continuum is the earth's atmosphere, or a gradual increase in loudness such that at one point it is possible to say that there is twice as much or three times as much as at some other point. If in addition twice as much loudness is correlated with, say, twice as much excitement, we can then refer also to a semantic differentiated continuum.

We look first at an undifferentiated continuum, one that by definition does not involve degrees along a scale but merely some indefinite point between two or more other points.

I take as my prime example the one given by Joos in the same passage quoted on p. 7: *They put their glasses on their noses.* English, he says, categorizes verbs into past versus present, and the tyranny of the categories is such that "the listener will react to exactly one of the categories" in a given dimension, "not . . . to more than one, or to none, whether the utterance is ambiguous or not". With the verb *put* in the example, the reader has already made up his mind in favor of past or in favor of present, in spite of the fact that there was nothing to tell him which was intended.

There is no question that we have here an all-or-none choice between two meanings of *put*, or perhaps we should say "between

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the two words *put*" (as much two words as *eat* and *ate* are two words). But is the tyranny that it illustrates actually typical of categories so much as it is of something much broader, namely the arbitrariness of designation by ANY lexeme or syntagmeme? The form *put* is ambiguous by virtue of the two categories to which it is assigned, but so is the form *light* by virtue of the two conceptual categories to which it is assigned: *The picture is too light (to need all that postage)*, *The picture is too light (with that developing process)*—here, exactly as with *put*, we automatically select one or the other meaning (or, if you prefer, one or the other of the two words).[1]

As with the overtly paradigmatic *put* and the unparadigmatic *light*, so with covert categories, partially grammaticized forms that lie between the two extremes. When Adlai Stevenson wrote "moral and social solidarity in the family of man is still to be found",[2] did he mean 'findable' or 'unfound'? When we find in *Language* the sentence "The secondary stress, once primary, was lost . . .,"[3] do we interpret 'formerly primary' or 'as soon as it became primary'? English makes no overt categorization of passive infinitives into classes of 'possibility' versus 'futurity', and the function word *once* is ambiguous. There is no essential difference between these cases and those of *put* and *light*; in all of them we have to choose; there is no tertium quid.

The problem then boils down to this: why necessarily *A* or *B*, and not something halfway between? The answer seems obvious: anything between would be ridiculous; it could not give rise to communication except communication about the utterance itself, that is, a pun. Some puns can be continua of a sort, which I mention only in passing because we are not concerned with this kind of continuum—for example, *Chopinhauer, the great philosopher-musician*. We do not ordinarily get puns with linguistic categories

[1] It does not really matter whether we speak of the same word with different meanings, or view the form as two homonyms—the same arbitrary selection is present in *It's too rough* meaning 'It's too hard' or 'It's not smooth enough'.

[2] *Progressive*, March 1959, p. 9.

[3] 28.143 (1952).

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not because there is a different principle of choice between *put-put* and *light-light* but because the categories lack the ludicrousness that makes for a good pun.

With this broader base, in which the tyranny of the categories is only one of countless tyrannies including all the homonyms and metaphorical extensions in the lexicon, we are in a better position to assess the nature of the tyranny. Linguistic categories are special in just one particular: if there is such a thing as a middle ground, it would be less likely to be found among paradigmatic homonyms than almost anywhere else. The ambiguity of *put-put* tends to be of the extreme kind, like that of *light-light* with a sharp cleavage between, not like that of *dreaming* in *He's dreaming* (asleep? daydreaming? imagining things?), where the cleavage is blurred. The categories chop up and draw rather sharp lines on the semantic side. Where verbs are concerned, our culture conceptualizes a time frame in which there are divisions without a middle ground. Whenever the choices are between alternatives that our culture sharply distinguishes, we must take one or the other. That is the nature of reality rather than the nature of language. There is no logical middle ground between an orange and a regret, and if some historical accident resulted in the same morph being used for both, they would still have to be discriminated just as sharply as they are with the two morphs that we now have.

This leaves us with an interesting question. Suppose the ambiguity does not compel us to embrace alternatives that are poles apart. Might there then be a continuum? Is it sometimes unnecessary to "resolve an ambiguity"? Can one find an undifferentiated continuum perhaps even among paradigmatic homonyms?

There will be a continuum if there is a "generality" in the sense given by Y. R. Chao: "A symbol is general when it is applicable to any one of a number of things whose differences are not denied or necessarily overlooked, but regarded as irrelevant in the context in which the symbol is used. Thus, the Chinese word *ren* is more general than the English word *man* or *woman* and is used when there is no point in distinguishing between the two. Again, *colored* is more general than *brown* or *red* and there are many occasions

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when the general idea of *colored* is the intention of the communication." Generality is to be distinguished from ambiguity, the latter exemplified in the sentence *Ta ideal mei sheng-chih*: "with *sheng-chih* taken as (1) 'grows anger—becomes angry' the sentence means 'He did not at all become angry', while with *sheng-chih* taken as (2) 'growing atmosphere—lively appearance' it means 'He is not at all forward-looking'; and there is little occasion for grouping becoming angry and forward-looking under any general conception of *sheng-chih*..."[4] In *He took a friend* we generalize *friend* to include old and young, male and female, free and slave. Whoever he took had to be one of these, say a free young male, but there is no "tyranny of categories"; the choices are simply ignored. But if one hears "Are they friends?" expecting the reply "Yes, they are quite friendly" and instead hears "No, they are Baptists", one is forced to a put-put kind of switching. This is an ambiguity.

A better example of generality is perhaps the word *rain* because of the evenness of its semantic continuity: it can embrace anything from a drizzle to a cloudburst. (It is the existence of these latter narrower generalities—along with categories of modification—that enables us to talk about the larger generality.)

The Voegelins make the same distinction between ambiguity and generality in terms of "discontinuous referent ranges" and "continuous referent ranges". An example of the one is a single Hopi morpheme meaning both 'sun' and 'clock'. An example of the other is a single Hopi morpheme "with a continuous range from 'thinking' to 'worrying'".[5] Malkiel cites the Spanish verb *despechar*, whose participle *despechado* could be used in any one of three meanings or in "any free combination of these meanings".[6]

[4] "*Ambiguity in Chinese*", in *Studia Serica Bernhard Karlgren Dedicata* (Copenhagen, 1959), p. 1.

[5] *Hopi domains.* Memoir 14 of the *International Journal of American Linguistics* (Baltimore, 1957), p. 5.

[6] "Studies in Hispano-Latin homonymics", *Language*, 28.299–338 (1952), p. 333. This suggests a term that may be ambiguous and general at the same time. An imaginative speaker or writer may deliberately choose an ambiguous term in order to plant his audience somewhere in the middle. But such an example is not the best for proving our case, as it may contain a weakness in logic: we cannot be sure whether the combination involves a freedom of the

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Our main problem, however, is not to find generalities in the lexicon at large, where they are pervasive, but in the categories, where they are scarce. I take first the most difficult case of all, Joos's *put-put* example itself.

There is a type of question, clearly formalized in English, in which the auxiliary verb is omitted (potentially also the subject), and the minimum requirement is an infinitive, a participle, or a complement of *be*.[7] They are related to expanded forms which we can give as their "meanings". Thus *See them yet*? may mean 'Do you see them yet?' or 'Did you see them yet?' and *Seen them yet*? (retaining the same subject) means 'Have you seen them yet?' If we line these up, (1) 'Do you see them yet?', (2) 'Did you see them yet?', and (3) 'Have you seen them yet?', we find that (1) is incongruous with both (2) and (3), but that (2) and (3) are semantically rather compatible. Yet (1) and (2), which are semantically incongruous, are formally identical, whereas (2) and (3), which are compatible, are formally different. Project this situation onto the verb *put*, which has not two forms in the kinds of questions indicated as *see* has *(do see, did see, have seen)*, but only one *(do put, did put, have put)*. We can now arrange a collision between two compatible items *(did put, have put)*, and not merely, as Joos did, between two incompatible ones *(do put, did put)*. If I say *Put them away yet*? I will force you to an either-or choice between the two incongruous meanings 'Do you put them away yet?' ('Has it become your habit?') and 'Did you put them away yet?'; but I do not force you to an either-or choice between the two compatible meanings 'Did you put them away yet?' and 'Have you put them away yet?', in spite of the formal difference, elsewhere in the structure, between *see* and *seen*, *do* and *done*, *go* and *gone*, etc.

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listener to choose one or another, even to hop at will in a series of successive choices, or is homogenized for him in advance. It is the mixture of the kaleidoscope versus the mixture of the cake recipe. With the kaleidoscope we never rest in the middle but only cross it on the way from one alternative to another, and it can be claimed then that the middle is an illusion.

[7] See Bolinger, *Interrogative structures of American English*, No. 28 of the *Publications of the American Dialect Society* (University, Alabama, 1957), p. 38.

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And if you were to ask me "Which did you mean, 'did you put' or 'have you put'?", I could not make a sensible answer.

What I am saying is that there is a generality in this type of question at the point where preterit and present perfect overlap: the speaker simply makes no distinction between the two. Is there evidence for this, other than one's intuitive feeling? While the burden of proof does not fall on me to prove a negative—rather it is up to one who maintains that there is a difference to prove that one exists—I believe that one can find some evidence in the answer received. As a test, I devised the following sequence: "Well, my assignment's almost done. You finish yours?"—"No, I . . . n't." This was submitted in written form to 53 persons who were instructed to fill the blank with whatever "according to your quick first impression belongs there". The results showed *have* 21, *did* 23, one undecided between *have* and *did*, and eight scattered among *shan't*, *couldn't*, *won't*, *wouldn't*, and *ain't*. The choice of *have* or *did* seems to be random, and this despite the fact that *have* cannot be in concord with the infinitive *finish* but calls for the past participle. All the more reason, then, to suppose that the same randomness can apply to *put*, where whichever is chosen, *have* or *did*, is in apparent concord.

It can be argued that the appearance of *did* or *have* in the answer automatically categorizes the word in the question, and the choice is therefore once again all-or-none. But this will not hold up. First, it does not account for the *finish . . . have* type, which is too common to put down as a lapse. Second, the same thing occurs with the more obvious lexical generalities and has no categorizing effect. If the answer to the question *Did you see my friend?* is to contain a pronoun, it must be *him* or *her*: *Yes, I saw him (her)*. But the categorical choice in the pronoun does not categorize *friend* as masculine or feminine; *friend* is indifferent to gender.[8]

[8] A possible instance of generality imposing itself on one part of the paradigm that is differentiated in other parts is afforded by case syncretism in Russian. Cf. review of Jakobson's paper in *American contributions to the Fourth International Congress of Slavicists*, in *Language*, 35.661 (1959). A more doubtful one, since there is no semantic continuum, is implied in the segmentation of Spanish

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I take as my second example a covert category, that of active-passive reciprocal relationships evidenced in morpheme pairs like *buy-sell (John sold the house to James: James was sold the house by John, James bought the house from John), give-take, inflict-suffer, teach-learn.* Straddling both sides of these pairs, and usually demanding an either-or choice, is the verb *rent.* In *I've been busy renting a house* we must take either 'obtaining a house' or 'providing a house', not a generality covering both. But what about *a rented house*? We do not have to choose. Whatever contrast there was before has been suspended; the only relevant contrast now is between *rented*, 'occupied by tenants' (who rent the house ~ to whom the house is rented) and *bought*, 'occupied by owners'.

Thus far we have looked for continuity only where there is morphemic identity. A more promising area might be that of blends, since here we find formal evidence of overlapping semantic fields. In a way, a generality such as *put* under the circumstances described is a blend, since it is a merger of two things which in other parts of the structure are distinguished—unlike *friend* or *rain*, where no such merger has occurred.

Blends are the opposite of homonyms. Studies of homonyms indicate that they can be tolerated under the same conditions that we found compelled us to make an either-or choice in the present and preterit of *put*, namely, when the ranges are sharply distin-

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verbs proposed by Sol Saporta, *Language*, 35.614 (1959). He defines the type *am-e-n* as containing in its ending two morphs and two morphemes, /-e-/ and /-n/, each with one semantic component, 'tense' and 'third person plural' respectively. The segmentation of *am-o*, however, has /-o/ as "one morph and one morpheme, but with two semantic components, 'tense' and 'first person singular'". This means that whereas tense and person-number are categorized separately in one form, they are combined in another. No either-or choice is imposed; both are delivered in one package.

There is perhaps a partial syncretism of singular and plural in English, and here I would judge that there is a true generality since the merged semantic ranges are singular and plural both as 'indefinite'. In answer to the question "What about the Marbro firm?" one never hears *It hasn't asked me to work for it*, but may readily hear *They haven't asked me to work for them*, which might seem to categorize *Marbro firm* as a plural; yet if the noun is restored in the answer, the verb is in the singular, though *them* is retained: *The Marbro firm hasn't asked me to work for them.*

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guished.[9] The formal identity of two words is not a hindrance when even the slightest external clue gives us the information we need. With blends, however, there is a merger of form that follows from sharing a semantic range. When someone unconsciously refers to a person as a *milksap*, he seems to have got himself in between *sap* and *milksop*. A hotel manager confided that catering had been a terrible *bugabear* since the war. I'll labor the obvious and identify the middle ground as between *bugbear* and *bugaboo*. Hoping to get good term papers from a class, I advised the students to be sure to hand in a *crack-up report*. A little back-tracking located my position somewhere between *bang-up report* on the one hand and *crack* or *crackerjack report* on the other. (The fact that *crack*, *bang*, and *report* are all synonyms in another area of course facilitated this.) Blends of semantically allied forms are probably more frequent than we realize. In one forty-minute speech (appropriately, it was delivered by a professor of chemistry [10]) I identified three: *you have at your avail = you have available + you have at your command*; *at base = basically + at bottom*; *a whole-scale embracing (of mechanism) = full-scale + wholesale*. These escape our notice because they are so natural that we do not realize when they occur—it is usually the more outlandish blends that get themselves recorded. By the same token the inconspicuous ones are likely to gain some currency: *squawk*, *dumbfound*, and *luncheon* are instanced by Mencken. Add *soonever = as soon as + whenever*, *he like to (died laughing) = he was like to (die laughing) + he almost (died laughing)*, and of course *most everywhere (everybody* etc.*) = most places + almost everywhere*.[11]

[9] Cf. Edna Rees Williams, *The conflict of homonyms in English* (New Haven, 1944), p. 4.

[10] Prof. Robert Maybury of the University of Redlands (Calif.), 26 March 1960.

[11] This whole line of reasoning can be disparaged on the grounds that the semantic field lies outside language proper anyway and might well induce a temporary upset in the system, just as a sneeze in the middle of a word may do strange things to the phones in it, but that is something for the pathologist, not the linguist. Specifically, we can imagine a psychological state in which a speaker has been vacillating between *bugbear* and *bugaboo* and vocalizes a moment too soon, while he is still straddling the choice. But the spontaneity

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I believe that the less clearly marked the form class, the larger and fuzzier the units that compose it, and the more complex the structure that they enter into, the greater the likelihood of unconscious and undetected blends.[12] Here we have what might be termed syntactic blends, of which I shall give a few examples.

English has a form class of nouns, marked at its core by singularity-plurality and at its periphery in various distributional ways. When a speaker says *She found it easy cooking with gas*, the hearer confronts an either-or choice: either *cooking* is a noun and the utterance means 'She found cooking with gas easy', or it is an adjective and the utterance means 'She, cooking with gas, found whatever she was doing to be easy'. The *-ing* form is automatically classed one way or the other. But when one motorist cuts ahead of another and the victim angrily mutters *That dirty dog—turning in front of me like that*, there is no way to tell which class the *-ing* belongs to; and it doesn't matter, for the message is the same either way. The haziness of the *-ing* is manifested in the structure in the uncertainty one finds in the type *I don't like his going so fast* ~ *I don't like him going so fast*. (In my own speech I prefer a possessive pronoun where one person is involved—*I don't like your going so fast*—but an objective pronoun if more than one are involved—*I don't like you and him going so fast*.) The whole thing is loosely thrown together and the classes are straddled. Householder points out a similar indefiniteness with the *-ing* in *while buying roses*.[13]

The moment a complex string is uttered for the first time, it begins to lead to a certain extent an existence of its own—its components are never afterward totally "free" in their relationship to the whole.

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and unconsciousness of many blends make it hard to regard them as ordinary lapses (e.g. spoonerisms, in which elements of the chain are transposed—blends are vertical to the chain, so to speak, being drawn from choices made prior to it). It is hard to imagine any such vacillation with its hybrid result not calling attention to itself.

[12] The factor of size and fuzziness complicated by lack of practise on the part of the speaker is evident in case syncretism in English: *for him and I* against *for me*, *The victory belongs to him* against *The victory belongs to he who wins it*.

[13] *Language*, 35.517 (1959).

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The extreme case is of course the idiom, and we can refer to the gradient of idiomatic stereotyping as "idiomization" and the process as "to idiomize"—the analog, in the idiom grammar, of "grammaticization" in the transform grammar. Viewed as an independent syntagmeme, the idiom's relationships with other strings cease to be entirely analyzable in terms of their respective components, and—more and more in proportion as other speakers take it up and repeat it—begin to resemble phonesthetic relationships: we say that *A* "reminds one of" *B* rather than that *A* "is derived from or is analyzable into" *B*. As totalities, *A* and *B* have each their semantic field, which overlap in the same way as the fields of *bugbear* and *bugaboo* overlap. This means that in tracing the relationships it may be necessary to go in more than one direction, adding to the uncertainties of a transformational analysis because it envisages something partially in the idiom grammar and not purely and simply in the transform grammar. Take the sentence *I'll see you in hell first*. What are the kernel sentences here? On the one hand, *I see you* and *You are in hell*. On the other hand, *I see you* and *I send you to hell*—in this case *I'll see you in hell* is like *I'll see you to the door* or *I'll see you through the lines* or *I'll see you down the road a piece*. I do not believe that the latter is the meaning the phrase originally had, but it has always been present to my mind as much as the other meaning when I have heard it. We do not have to decide; the constructions overlap because the conceptual ranges overlap—the ranges here being a prediction ('You will be in hell') and a threat ('I'll help you get there'), between which humanity historically fails to discriminate.

If we argue that *put* present and *put* preterit pose an either-or choice because of the existence, elsewhere in the structure, of *do* and *did* and *eat* and *ate*, then it is not too far-fetched to accept the other side of the coin and reason that *full-scale* and *wholesale* did not for one speaker pose an either-or choice because there was too much overlapping of semantic ranges.[14]

[14] For the most convincing evidence of the blending of form corresponding to a blending of semantic ranges, the reader should consult the writings of Yakov Malkiel.

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3

GRADIENCE: GRADIENT LENGTH

In the undifferentiated or homogeneous continuum there is a unity or merger of form corresponding to a unity or merger of semantic fields. In a differentiated or gradient continuum there is a continuous modification of form corresponding to a continuous modification in the semantic field. The continuum of form may be discontinuous at another level—for example, it may be that there is a quantum of innervation in psychology such that an increase in intensity is not perceived along a perfectly gradient scale but in small jumps. This discontinuity, however, is psychological, not linguistic; it is analogous to the discontinuity of a resistor in an electrical circuit which is due to the molecular structure of the metal rather than to some prearranged condition in the circuit—something irrelevant, that is, in the electrical circuit except as it constitutes a nuisance. A more extreme case of interrupted gradience would be something like the vowel scale in English applied in a phonesthetic way to notions of size, as Sapir and others have observed.[1] If lowering relates to largeness and raising to smallness, we may say that the higher a vowel is the more it lends itself to 'smallness', and that this is a gradient phenomenon despite the fact that the English vowels are not continuous along the tongue-height scale and therefore compel jumps from one to the next. The phonetic discontinuity is irrelevant to the gradient relationship with 'size'.

Furthermore, infinitesimal gradations are not required even where they might be conceivable. It would be easy to prove that extremely small steps are beyond perception. For there to be gradience it is sufficient to show that no definite number can be established between two poles. For example, it may be claimed that

[1] Cf. Edward Sapir, "A Study in Phonetic Symbolism", *Journal of Experimental Psychology*, 12.225–239 (1929).

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four phonemic levels of pitch can be discovered in English, and it is doubtless true that contrastive analysis can arrive at the number four. But it is not enough to prove that there are x levels. It must also be shown that there are more than $x-1$ levels (i.e., proved that certain of the contrasts cannot be reduced to some other dimension) and fewer than $x + 1$ levels. It is a sufficient condition for gradience that this cannot be done.

Two manifestations of gradience assert themselves with special insistence: length and intonation.

Length is difficult to pin down. It is generally regarded as non-phonemic in English. Its phonetic feature is by some analysts crowded along with intensity into phonemes of stress, or along with intonational phenomena into phonemes of juncture.[2] I want to touch on three manifestations of length as possible indications of gradience.

First, length of silence. I could refer here to external juncture, and of course we know that the lengthening of terminal segments often produces an impression similar to that of inserting pauses; but to simplify matters I shall limit myself to separations that are out-and-out silence. I have no experimental confirmation on this point, but I am convinced that measurements would agree with my subjective impression: that when I read a fairly long passage aloud, I make longer pauses between paragraphs than between sentences. Paragraphs are a division point likely to be overlooked by analysts, who have up to now not displayed much interest in units of organization larger than the sentence. Yet I am sure that speakers do use pause in this way, fitting it to the needs of the moment, making a section pause longer than a paragraph pause, a paragraph pause

[2] Henry Lee Smith states that "length, as such, is phonemic in neither language [English or German]" (*Language*, 34.96 [1958]). But Samuel Martin is not satisfied that length does not operate independently, for he says (*Language*, 32.681 [1956]) that "some speakers may have a coda of length /:/ which cannot be accounted for by juncture"; but he phonemicizes it and then drops the matter. One of his examples is *bee-line* versus *feline*. Wiktor Jassem instances *bee-sting* versus *feasting*. The most striking example I know is *selfish* versus *shell-fish*, and I am almost inclined to believe that the two have polarized each other, though it is more likely that *selfish* merely represents an extreme case of compression due to complete fusion and high frequency.

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longer than a sentence pause, and within the sentence adjusting the pauses in similar fashion. There are no set degrees for this—if there were, everyone would agree on punctuation and indentation—but it works.[3]

Next, length as it functions in a way similar to stress. The crisscrossing of contrasts of length, pitch, and intensity are so complex that it is no wonder we are tempted to throw them all together, but I believe that length operates independently and that when, for example, a pitch contrast occurs along with added length, it is not one thing that is happening but two. To provide a notion to hang this on, I am going to jump ahead of myself a bit and say now that I think the function of length, or at any rate its most pervasive function, is to separate a given element for attention. It differs in this respect from pitch accent. Pitch accent[4] will separate an element from its environment by making it stick out from the intonational line, but this (and again I am hypothesizing) is a separation for importance. When something is made extra long, it seems to receive its extra length as a way of keeping it from being missed. There are two sides to this, which examined together suggest a pre-linguistic basis for it. When a speaker handles an unfamiliar item, he is liable to fumble it. So he moves slowly. The chances are that his hearer's degree of familiarity with the thing is about the same, and the slowing down guides his attention and helps him to follow. The result is that we have any number of gradations in length depending on degrees of familiarity, and this means, of course, varying from speaker to speaker, but within limits that are relatively constant and at any one time affect the language—the individual lexical items, say—in fairly stable ways. When I use the word *concert* in the sentence *These things are done in concert*, I treat it more tenderly than when I say *I listened to the concert*—in the second one, the so-called medial stress, which I

[3] The Maclay-Osgood experiments quoted above indirectly support my assumptions about length of pause.

[4] See Bolinger, "A Theory of Pitch Accent in English", *Word*, 14.109–149 (1958), and compare Wiktor Jassem, "The Phonology of Polish Stress", *Word*, 15.252–269 (1959).

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think is a matter of length primarily, is on the way out. When I use the word *rest* in the sense of 'remainder' I toss it off at top speed; but when it means 'repose', I slow it down. In *The rest of the people refused, rest* is abbreviated and may even lose the final phoneme /t/; but in *The rest of the people is important and should not be disturbed,* no such condensation occurs. I make the verbs *die, lie, buy, tie, try* shorter than the verb *guy* meaning 'ridicule'. I can speed up *Why don't we try 'im*?, but I have to slow down with *Why don't we guy 'im*? This shows up particularly in the participle—*guying* as against *lying, trying, dying.* But in the technical sense of *guy* I can speed up: *Why don't we guy it with this piece of wire*? In technical settings, speaker and hearer are prepared for technical terms. In one meaning of the word *go,* encountered in *go for,* 'be enthusiastic about', I believe that there is always some lengthening: *He sure goes for that new girl, I don't go for that kind of behavior.* Contrast this with the potential degradation of *go* in the exchange "What are you planning to do after class?"—"*I think I'll go home.*"

Are there just two degrees, longer and shorter, so that we could conveniently phonemicize the extra length? Take the word *one* as a numeral, as a personal pronoun, and as a nominalizer. Example 1: *It isn't the fact that he writes his ones in the Continental style, but that he writes such little ones.* Example 2: *What a wonderful family, the parents and their little ones.* Example 3: *These eggs are hardly a mouthful apiece; next time don't buy such little ones.* These to me are gradient from long to short. Of course, in the third example we can degrade the vowel, but we don't have to, which gives a point to the pun *May all your troubles be little ones.*

We see evidence of variable speed in the handling of function words. Wherever there is homophony between a function word and a content word, the function word will be found to be condensable to a degree that the content word is not. Take the pronoun *you* as against either of the homophonous nouns *ewe* or *yew.* If I say, in answer to your question "What is that?", *It's a ewe,* shortening *ewe,* you are apt to look puzzled and ask me to repeat. But if I say *It's for you,* shortening *you* just as much, its brevity will not seem strange at all. In answer to "What about tomorrow?" it is normal to say

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Stop worry ing. I'm go ing to see him

—with *going* very short, and meaning 'I have every intention of dong it'. But in answer to "How will you get to see him?" it would be more likely to be

I'm go: ing to see him

with *going* lengthened; *go* here is independent. There are even differences among the function words themselves, but here degradation usually goes beyond reduction in length and affects the phones within the word; for example, *I gotta go*, shortened and with flapped /t/, means 'I have to go', but *I got to go*, longer and with aspirated /t/, means 'I was allowed to go'. Another example is the preposition *about* in the less usual sense of 'in the neighborhood of' and the more usual sense of 'concerning'. Where I can readily say *These revelations tell all about you*, with [əbáwčə], I would say *These revelations lie all about you*, longer and with [əbáwtju]. Or take *may* in *You may go then* with highest pitch on *go*: when *may* is degraded, the sentence means 'You are permitted to go'; when *may* is lengthened, it means 'It is possible that you will go'.

It is hard to separate length from intonation, as I have said, but one can find situations where pitch contrasts are neutralized and length contrasts are retained. In the following two utterances the pitch accent is on *people*, followed by a terminal level:

How many peo ple were there? How many peo ple were the:re?

In this case length, with no necessary deviation in vowel quality or intensity, is our cue to the two functions of *there*, the first as an inverted stopgap subject, the second as an adverb.

To find how other speakers might react to the notion of length tied to unfamiliarity—or, to put it in reverse, condensation tied to familiarity—I surveyed a number of individuals and a couple of

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small groups in different parts of the country, nineteen speakers in all, with a set of paired expressions, some twenty-five choices on the order of *sugar loaf* versus *sugar lump*, *sand bar* versus *sand spit*, and the like. On the test form the two members of each pair were punctuated alike (both separate, both hyphenated, or both solid), to avoid influencing the preferences, and the word that I thought would be regarded as longer was given second about as often as first. The instructions were: "Please study the following pairs, all of which have the major stress on the underscored element. Examine the underscored word (or syllable) in each pair, and try to form an impression of whether in one member of the pair it might tend to be longer-and-slower than in the other member. (One way to do this is to try mentally to speed up the members of the pair, to see which one resists speeding up most strongly.)." At the end was a further instruction: "Do you observe in yourself a tendency to mark the pairs in accord with any consistent criterion or criteria? Please write comments." Twelve of the nineteen took the trouble to answer this last question. Six stated that the less familiar member of the pair was the longer. Two said "less familiar" along with various other suggestions. One said "less fused", which probably means the same. This gives nine of the twelve subjectively agreeing with my own feeling. The scores were 301 in favor of the predicted choices, 153 against. In the table I give the predicted "short" form first, "long" second; the number is the total voting "long" for that form:

Predicted short		*Predicted long*	
store-keeper	9	*score*-keeper	8
*bi*cycle	6	*bi*nary	13
pie-face	8	*pie*-filling	11
blow-hard	10	*blow*-gun	7
*bar*maid	7	*bar*fly	11
hair-raising	2	*hare*-raising	17
file cabinet (for papers)	2	*file* cabinet (for rasps)	15
weed patch	8	*weed* killer	11
lie-detector	2	*lye*-detector	16
fashion-plate	4	*fashion*-designer	15

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Predicted short		*Predicted long*	
sugar-lump	6	*sugar* tree	12
ferry boat	8	*fairy* tale	11
time table	7	*time* bomb	12
American *Fur* Products Co.	8	American *Fir* Products Co.	3
oil can	4	*oil* industry	15
fire-fighter	9	*fire*-extinguisher	10
trading post	5	*trading* stamp	14
wall paper	5	*wall* flower	14
stomach ache	4	*stomach* pump	15
wine glass	11	*wine* press	8
*love*sick	5	*love*lorn	13
battle field	6	*battle* hymn	13
lightning bug	8	*lightning* flash	11
sand bar	6	*sand* spit	11
sugar lump	3	*sugar* loaf	15
	153		301

The predictions were confirmed in all but four cases, and by margins of two to one or better in thirteen of the twenty-five. Some of the miscalculations were interesting. *Fur* I suspect somehow reflects the spelling. *Blow-hard* ('braggart') is probably not in others' dialects as I had expected it to be. As for *store-keeper* and *score-keeper*, I discovered that seven of the nine votes in favor of *store-keeper* as the longer member were from one undergraduate class, made up, as we all know, of members of a generation which rarely shops and when it does goes to supermarkets, but for whom a score-keeper is one of life's essentials.

The test contained mainly compounds, but it was not a test of compounds versus unit morphs because the contrasting pairs were uniformly one or the other. In other words, there is nothing about the differences noted here that can be ascribed to some fixed phonemic length which indicates compounds as against unit morphs. Rather it is evidence of something that was noted by Pike. Discussing the degrees of bondage and freedom in the creation and dissolution of compounds, he raised the question "as to ...

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whether a graded scale from full freedom of words to tightly bound forms, with various degrees of freezing, would reflect English structure more faithfully than an initial dichotomy into words and phrases . . .".[5] An example of a compound versus a phrase might be this: a housewife referring to her washing says *I don't need anything more on the clothesline*; a customer in a haberdashery says *I don't need anything more in the clo:thes li:ne*. But for me—looking at a more inclusive series—there are differences of fusion, measured by length from shortest to longest, in the words *worship*, *kinship*, *kingship*, and *tin ship*. Where one linguist finds an open juncture in the word *distaste* because of the aspirated /t/,[6] I find another four-step gradient coextensive with degrees of fusion in the series *distaper*, *distaste*, *distemper*, and *disturb*, conditioned I believe by progressive reduction in length or by what we might term more loosely "condensation", of which length is the main phonetic correlate.

If my feeling about compounds is accurate, then there should be no clear borderline between compounds and unit morphs, but rather a gradual up or down in length between them. (In fact, I would not limit the upper rim to compounds, i.e., to "words", but extend it to all stereotypes, including the kind about which Robert Louis Stevenson, struggling with American English, complained that "the business of life is not carried on by words, but in set phrases, each with a special and almost a slang signification".[7]) In my speech the morpheme *man* functions as an independent word and as a formative, with every conceivable gradation between the two. If I have sent for a tree surgeon and he arrives I will announce to my wife, *The tree man is here*, with the word about as unattached as it would be in an utterance like *A frée man is the man for me*. One step down is the *man* in *He's just their leg man*. Another step, the *trashman*. Another, the *mailman*. And finally the *postman*. With *mailman* I still make a barely distinguishable difference between the singular and the plural: *two mailmen*, *one mailman*. With *postman*

[5] *Intonation*, p. 81.
[6] Newman, "Stress System", p. 181. See note 9 on p. 31.
[7] "Across the Plains", *The amateur emigrant* (New York, 1925), p. 109.

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even this is gone: *two postmen, one postman*—[mn̩] in both. This will not be the same for different speakers. For some, the uniformed attendant under the marquee is still a *door-man* ([mæn]); for others he is a *doorman* ([mn̩]) and for these there is no difference between the compound *doorman* and the unit *vermin*. Loss of analyzability is usually a concomitant of the reduction of syllables in such words as these, but usualness and frequency are more fundamental correlates. Take the word *merman*. Its initial element makes it less analyzable than *mailman*, but the *-man* is fuller, for *merman* is a word that is seldom on anyone's lips.

At the other extreme are unit words—either unit morphs or words in which the morphs are completely fossilized—that are stretched more than words in which the morphs are less completely fossilized. When I say *aphrodisiac* I handle it as gingerly as when I say *Afro-American*. And the same applies between unit morphs. If I say *That's his maw* meaning 'gullet, jaws, mouth', I tend to lengthen *maw* more than if, imitating dialect, I say *That's his maw* meaning 'mother'.[8]

There are undoubtedly plateaus along the gradient of length. We find a sort of pattern set, partly by incompletely assimilated loanwords and supported by the vast number of incompletely fused compounds, in which there is what is traditionally marked as a "loud" stress followed by a "medial", with extra length on both syllables—words like *prótèst, cóntèst, índèx, rébàte*, many of them differing from the cognate verb by this stress-and-length feature *(protést, contést)*.[9] But even here one may find gradience. There are

[8] Overheard from a linguist friend, Feb. 1960: *We have several Thais*, with *Thais* noticeable longer than *ties* would have been.

[9] For a number of recent analysts this feature is an allophone of plus juncture, the slowing down being an indication that there is a juncture in the vicinity and the aspirated /t/ (or something analogous) telling where it is. But too much reliance is placed on that /t/—of Hockett's five examples of plus juncture in the middle of synchronically unit morphs, all have it (*A course in modern linguistics* [New York, 1958], p. 59).

I suggest that the aspiration of /t/ (and, I would suppose, also of /p/ and /k/) is automatically conditioned by length, regardless of the reason for the length: (1) Stressed syllables are normally longer than others, and an unclustered /t/ initial in a stressed syllable is normally aspirated: *retention, contend, attain*. (2) Words of the type under consideration, in which two adjacent syllables are

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speakers who say *pró:grà:m*; others say *progrm̩*; my own pronunciation of this word is somewhere in between. But a relatively unfamiliar word like *vortex* maintains itself.

It is now time to consider the third aspect of length: "expressive lengthening", Newman's "rhetorical accent". Unlike the previous instances, where we found it possible to have extra length where pitch accent had been neutralized, as in the example *How many people were there*?, in this new instance length always joins a pitch accent: *It's a lo:ng, lo:ng way*; *He's a fi:ne o:ld man.* We usually think of it in connection with the high-pitched accents but it can

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both long ("loud stress" followed by "medial stress") and the second begins with unclustered /t/, normally have aspiration: *cóntest, prótest, vortex, proton*— regardless of whether the /t/ occurs in the middle of a unit morph or at a syntactic boundary. (3) Words that are slowed down for emphasis also aspirate such /t/'s: *pos-i-tive-ly, He cer-tain-ly did!* (4) Words that are slowed by reason of unfamiliarity, likewise: in my speech, the familiar words *painter, printer, winter,* and *splinter* can, like *into* in *He ran into the house*, readily be produced with nasalized vowel and flapped /t/, while the less familiar *squinter* would probably have an aspirated /t/ and the still less familiar *minter* would definitely have one. If, as Hockett seems to imply, some people in parts of New York City aspirate the /t/'s of *winter* and *shelter*, I suspect that this is due to—or anyway ultimately traceable to—the gingerly handling, hence slowing down, of words by novice speakers of English. The relatively unfamiliar *Titan* in my speech regularly has a /t/ that loses its aspiration only on being speeded up, while the familiar *tighten* acquires aspiration only with an exaggerated slowing down.

What value has the location of a plus juncture on evidence that is so obviously contingent on something extraneous? When Hockett finds a contrast between *tin+tax* and *syntax* he assumes a speed for *syntax* that is natural for him as a grammarian but would not be natural for a carpenter. His examples of *Pla+to*, *Ca+to*, and *NA+TO* are clearly cases of new or otherwise comparatively unfamiliar words, in the speech of those who aspirate the /t/'s.

If plus juncture is useful in proportion as it assists in some morphosyntactic operation rather than merely as a bit of narrow phonetic transcription, then the aspirated /t/ is no more than a clue (as, indeed, Householder appears to regard it in his criticism of Hockett, *Language*, 35.512 [1959]). On the other hand, if I am right in supposing that it is conditioned by length, then the ABSENCE of aspiration coupled with the PRESENCE of lengthening is a much better clue, for it coincides more regularly with syntactic borders. In my speech, *goatee* has as much aspiration as *go tee (Let's go tee those balls)*, but the division *goa+tee* is syntactically worthless. But the absence of aspiration in the word *grantee* with its two long syllables points to *grant+ee*, a syntactically useful analysis. Similarly with the useless *fron+tier* and the useful *front+ear.*

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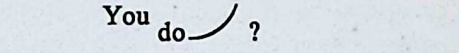
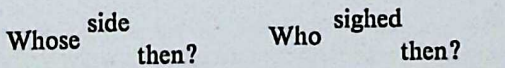
occur with a low-pitched one as well: In reply to the statement "I like him a lot", one can say, in mock wonderment,



It can give an increment in any direction, including smallness: a mother says to her child, *That happened when you were a ti:ny baby.*[10]

It might seem that this is one place where gradience is least important linguistically because it is so obviously emotive and so obviously superadded. But there is more to the story. Expressive lengthening not only operates at the will of the speaker but filters down into the much tighter scheme of individual morphs. Where in the previous set less frequent words tended to be longer than more frequent ones, here words with emotive reference tend to be longer than words with logical reference. An illustration is the sentence *These women could not bear children,* which is not quite the semantically minimal pair that Weinreich supposes[11] if length is taken into account—*bear* "endure" is lengthened and conversely the idiomizing of *bear children* causes *bear* "give birth to" to be shortened. (But *bear* "endure" in the more idiomized *can't bear to, can hardly bear to,* e.g. *I can't bear to look at it, I can hardly bear to think of it,* is shorter.) Another entertaining example is the attempt that is sometimes made to discover a phonemic difference between *morning* and *mourning* in dialects which, like mine, distinguish the two only by length. Here are some other examples of built-in length from my speech:

The verb *pine* is longer than the noun *pine* referring to a tree: *The poor thing will just pi:ne away*; I can lengthen the noun, but I cannot shorten the verb. In



[10] Compare Yoruba: "Somehow this hurry over the word *pépèpé* is awkward. It has three *p's*, the heavy labiovelar plosive, and is a descriptive word with emotional connotation, 'tiny' rather than 'small'." B. Siertsema in *Lingua*, 8.402 (1959).

[11] *Romance Philology*, 13.337 (1960).

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I cannot reduce *sighed* as much as *side* (and would tend more to spread *sighed* over a downglide). This is not because of any form of juncture—*sighed* being a suffixed form—because with neutral *tried* in *Who tried then*? I can compress as much as I please. Nor is there any necessary connection with particular form classes; the noun *rampage* cannot be compressed in my speech. The adjectives *sharp* and *keen* cannot both be compressed equally. As one person remarked after trying this on *It has a sharp blade* and *It has a keen blade*, "*keen* goes to pot sooner than *sharp* does". The adjective *sly* has a built-in length that is lacking in the adjective *high*. In answer to your question "What's the trouble with him?" I can reply

$$\text{He' s too } \begin{matrix} \text{hi} \\ \text{gh} \end{matrix}$$

compressing *high* pretty tight. But if I try to do the same in *He's too sly*, you will be tempted to say "What's that again?" The inherent length of *sly* carries over into the noun *slyness*, and has led to a search there for a juncture in order to account for what is heard in *slyness* but not in *highness*.[12]

Expressive lengthening produces a minimal pair in *'way* and its etymological source *away*, as in the contrasting utterances *He went away to Denver* and *He went 'way to Denver*. If *'way* is compressed, it is likely to be misunderstood. To test this, I gave a class of eighteen undergraduate students the tape-recorded sentences *These migratory birds fly 'way* [compressed to normal length of *away*] *to South America* and *These migratory birds fly 'way* [normally lengthened] *to South America*, in this order and with the intonation as nearly the same as I could make it, and asked them to copy what they heard. Only one noted that it was *'way* in both cases. Ten wrote *away* for both, which must be discounted because of the likelihood of hypercorrect spelling. Seven wrote *away* for the compressed form, *way* for the lengthened one.[13]

[12] See George L. Trager and Henry Lee Smith, Jr., *An outline of English structure* (1949), p. 11.

[13] Is it surprising that individual words should have unique constituents of length or intonation or any other non-segmental component, even perhaps a

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Expressive lengthening even has a foothold in the transformational system: the adverb *fairly* specifies added length in a following verb: *She fairly screa:med.* Similarly with repetitive formulas: *yea:r after year, ro:w on row, they ta:lked and talked, dee:per and deeper* (and so for most repeated comparatives except—again the condensing power of familiarity—the highly frequent *better and better, worse and worse, more and more, less and less*).

Let me sum up these views. I believe that length functions independently in English in at least three ways, all gradient: First as a division marker. Second as a separation for attention, with what is unfamiliar or what is likely to be missed slowed down, and what is familiar and in no danger of being lost speeded up: call this juncture if you like—my only interest is in showing that it cannot merely be said to be there or not to be there, but must be accepted as there in an indefinite number of degrees. Third as expressive lengthening, with the requirement that there be an accompanying pitch accent. Both of the latter two brand themselves to some extent on individual words, length-for-attention in the speeding up of function words and the slowing down of content words, expressive lengthening in the slowing down of words having emotional referents and the acceleration of words having factual or neutral referents. Together they produce much of the alternate speeding up and slowing down in the utterance as a whole that we identify as rhythm. The speaker is free, within limits, to take the measure of the situation and adjust his speeds accordingly. But there is obligatory lengthening in too many places for us to insist that English morphemics be studied in total disregard of it.

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snap of the fingers? I do not find it so. Take the word *see* as an exclamation of triumph. It has been stereotyped with both added length and a rising terminal (plus, almost always, an exaggerated spread of the lips); take away either one and all you have left is a verb meaning 'perceive'. Mostly, morphs are put together like Erector toys, all with pieces from the same set. But this does not preclude the young builder from plucking a feather out of the duster and putting it on the hat of his mechanical man.

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4

GRADIENCE: GRADIENT INTONATION

My last stronghold of gradience is intonation. It is an embattled stronghold, for more has been said about gradience here than anywhere else. There is no longer much disagreement about WHETHER gradience is present in pitch phenomena; the disagreement lies in what is to be done with it—whether to admit that it is all gradient and exclude it absolutely from linguistics, as is advocated by Leigh Lisker,[1] or be less rigid about one's definition of linguistics and allow it in, as Eli Fischer-Jørgensen apparently does, or open the door half-way and then slam it shut as George Trager does. Here are Fischer-Jørgensen's words: "It is rare that small differences of sound ... correspond to small and dubious differences of meaning... [But] there are borderline cases where the relation is not arbitrary and where gradual differences of sound will correspond to gradual differences of meaning—e.g., this may happen for intonation and emphasis."[2]

The dilemma of course is that changes in fundamental pitch are on the one hand obviously gradient, and on the other hand obviously perform certain functions in microlinguistics that most analysts feel they cannot do without. Trager's solution is to adopt for his phonemic purposes the four levels conceived by Pike, and then to put one escape valve on top and another underneath, to get rid of gradience. These escape valves are the share that fundamental pitch has in his "voice qualities" and "vocal qualifiers". "Voice quality" is evidenced by a widening or narrowing of the total pitch range, with the four levels presumably maintaining themselves but merely expanded or contracted. "Vocal qualifier"

[1] *Language*, 33.371 (1957).
[2] *For Roman Jakobson* (1956), p. 142.

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means, where pitch is concerned, a total raising or a total lowering.[3]

My own answer to the dilemma—admittedly a partial one—is considerably different. I recognize the existence of all-or-none phenomena in English speech melody. I have grouped these around a set of contrasts that I term pitch accents. I find, or think I find, all-or-none contrasts both between a pitch accent and zero and between one pitch accent and another. Here is an example of a contrast between a pitch accent and zero. In the utterance

I want doors that I can shu t.

there are two melodic peaks, one on *doors* and one on *shut*. In

I want doors that I can shut

there is only one peak, on *doors*. These two utterances mean something quite different, so I think we may safely assume that

[3] "Paralanguage", *Studies in Linguistics*, 13.1-12 (1958). The statement of this is programmatic, and so far as I know the serious questions that it raises have not been answered. For example, what happens if there is a single extra-high pitch against a background of average pitches? For that one pitch have all four reference levels shot up, and do they then sink back on the next syllable as the lower pitches are resumed? A more important objection is that Trager's definition of a voice quality narrowed from above is a perfect intonational description of a parenthesis, in which all pitch contrasts are retained but are flattened. I would distinguish between a parenthesis, in which this flattening does occur, e.g.

J oh^n . . and he doesn't care who knows it . . is the etc.

and an aside, in which the contrasts are the same but there is no flattening:

J oh^n . . and he doesn't care who knows it . . is the etc.

The usual thing is a parenthesis rather than an aside, and I suspect that most analysts would regard a parenthesis as microlinguistic.

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some kind of rather sharp contrast attaches to the presence and absence of that second peak. My reactions to the contrast further suggest that it is not a gradient phenomenon, for I can lower the second peak as much as I please, and as long as I hear it at all, it is still sharply distinguished from the same utterance with the peak entirely gone. Now here is where the all-or-none enters in: there comes a point where I can hear the utterance either way, but, as with the reversible staircase. I have to choose between them; there is no middle ground. Another example with the identical contrast is

I don't want to go to mor row I don't want to go tomorrow

The first suggests 'I might be willing to go today', the second 'I don't want to do this thing that has already been referred to'. The difference is not a matter of stress in the sense of intensity or length. We can add intensity and length in the second, so as to get

I don't want to go tomó:rrow

and the effect is that of a voice qualifier, the logical meaning remaining the same: 'I don't want to do this thing that has already been referred to, and phooey on you for suggesting it.' However we view the contrast that I have set up between the presence and absence of that second peak, it is due exclusively to pitch.

Now for an all-or-none contrast between one accent and another. A says to B, "His name is John Peck." B replies

John Pe^{ck}?

As you listen to this, if I am careful not to degrade either of the two syllables in any way such as by shortening one of them a bit, you can hear the major prominence on either syllable. The chances are that you will hear it on *John*, implying a contrastive accent with the

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meaning 'I knew it was Peck but I didn't think that John was his first name'. But you can also hear it with the major prominence on *Peck*, in which case either there is no contrastive accent at all (you are merely showing surprise that the name as a whole should apply to this individual) or *Peck* is contrastive. I can make it easier by calling in some other cues of prominence and saying

Jo:hn Peck? John Pe:ck?

with *John* longer in the first, *Peck* longer in the second, and more terminal rise in the second. I can also make it easier by not degrading anything but by supplying a couple of flanking syllables, e.g. by picking a three-syllable first name rather than a one-syllable one:

Greg ory Peck? Gregory Peck?

In the first, *Peck* does not break away from the intonational line, and carries no prominence; *Gregory* is contrastive. In the second, *Peck* does break away, and carries the accent. However we achieve this contrast, in the utterance *John Peck* as it appears in the first example we have to choose between a major prominence on *John* or a major prominence on *Peck*. The meaning is not the same, and there is no middle ground.

Let me combine these now in a two-way either-or contrast, one involving both accent versus zero and accent versus accent. A lady says to her friend, "Would you like to see me in my new dress?" and the friend replies

I'd like nothing better I'd like no thing better

In the first, the lady is flattered; in the second, the friend gets thrown out of the house. In the first, there are two prominences, one each on *nothing* and *better*; in the second, there is one prominence, of a different kind, on *nothing*, and no pitch prominence at all on *better*.

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Another kind of all-or-none involves the relative height of two peaks of prominence. English imperative utterances differ on the whole from declarative ones in reversing the order of relative height. In most commands, it goes from higher to lower, e.g.

Bring me a doz en

with *bring* higher than *doz-*. In most declarative utterances it goes from lower to higher, e.g.

He brought me a doz en

with *doz-* higher than *brought*. I do not give this as a rule, because there are plenty of exceptions, but only to provide a setting for my example, which will be of a command in which the sequence of heights is altered. The sentence I have in mind is this one: A says to B

He y! Will you lend me your pli ers!

with the last two peaks at the same height. Or he says

He y! Will you lend me your pli ers!

with the last peak a little lower than the preceding one. I see no all-or-none contrast here. But if the last peak is pushed higher than the one preceding,

He y! Will you lend me your pli ers!

I feel that there is an abrupt difference in meaning. Whereas the first two utterances could have come out of the blue, the last one requires groundwork. Either B has failed to hear and A is having to

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repeat, or B has tossed over a screwdriver and A is making it clear that that was not what he wanted.

A final all-or-none is found in terminal pitches which some analysts regard as junctures. A says to B, "Will you help me?" B replies either

$$O_{kay} \qquad \text{or} \qquad O_{kay}$$

—the latter with a slight terminal rise and both staying fairly high on the syllable *-kay*. I discern no radical difference here. Or he says

$$O_{kay} \qquad \text{or} \qquad O_{kay}$$

—with as little or as much downmotion on *-kay* in the second instance as you please. Now there is a marked difference, although the pitch contrasts are no more radical than in the first two. The formal difference is one of a sustained or rising pitch on the one hand, and a falling one on the other.

Now that we have before us several instances of all-or-none, we can see whether in the neighborhood of each of them there may be evidence of gradience. Take them in reverse order, looking first at *okay*. Let me assign, hypothetically, a meaning to the pitch contrast that we just noted: sustained or high or rising pitch, let's say, indicates inconclusiveness, and low or falling pitch indicates conclusiveness. Now raise the terminal pitch from level to level through various degrees of rises:

$$O_{kay} \qquad O_{kay} \qquad O_{kay} \qquad O_{kay}$$

I discern no sharp contrast here, but I do discern a quantitative change in the meaning that was assigned; all are inconclusive, but the increasing rises make the utterance more so. Similarly with increasing depth of fall for increasing conclusiveness.

Similarly with relative heights. Once the second peak is higher, it makes no difference how much higher—there is no abrupt reversal

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as there was when that certain critical point was passed. But there is a quantitative difference. Whatever it is that we find with the raised second peak, there is more of it as that peak goes higher.

And so with the first example. Once we get away from the zero accent in

I don't want
to go tomorrow

and start moving the syllable *-mor-* up, we may move it at will, with gradual increments of contrast implied for *tomorrow*.

Much more could be said for gradience in pitch—for instance, the extraordinary coincidence that "pitch morphemes" of similar phonemic shape are similar in meaning [4]—but these samples should be enough to show that it is gradient not only when it exceeds the normal limits but also within those limits.

[4] See my criticism of Trager-Smith, *Word*, 7.200 (1951), and now Joseph E. Grimes, "Huichol Tone and Intonation", *International Journal of American Linguistics*, 25.221–232, who defines the pitch morpheme 41 in Huichol as meaning 'attention is called to the morpheme on which the nucleus begins' and 31 as 'slight attention is called to the morpheme on which the nucleus begins'; also 34 is 'emphasis' and 24 is 'mild emphasis' (p. 230).

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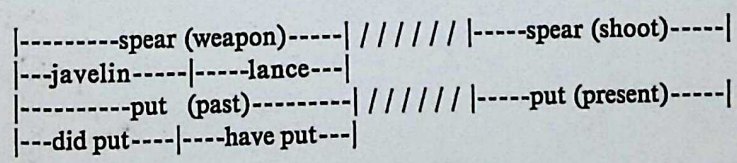
5

CONCLUSIONS

The success of segmental analysis has impressed its image too firmly on those central layers of language that encompass the most central and universal layer of all, the segmental phonemes. A phoneme is by definition a meaningless sub-unit. Since it is meaningless, variations in its structure can be dismissed as accidental or as imposed by some higher layer and hence irrelevant to the phoneme itself. The moment we step across the threshold of symbolism, however—of phenomena in language that are coded to correspond to phenomena in larger areas of behavior—we are in a different world. It should never have been assumed that the techniques that worked below the threshold will work just as well above it. With the phoneme, the all-or-none is everything. Above the phoneme, the all-or-none is adjustable. The act of symbolizing human experience calls for breaking an over-all continuum into fragments that are discontinuous with respect to other fragments but constitute small continua within themselves. If one such continuum abuts on another, it may happen—even when the continua are counted among the paradigmatic categories—that no all-or-none choice is imposed between them; a compromise form may appear, with the same morpheme or syntagmeme covering them both even though at other times a separation is insisted upon. This can be schematized as follows, with dashes showing the extension of the continuum, vertical lines the limits of abutting continua, and slant lines the gaps between non-contiguous continua:



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Where understanding a given form involves crossing slant lines, there is ambiguity; where not, there is generality, and it makes no difference whether the general term is a completely different morph, like *spear* vis-à-vis *javelin* and *lance*, or is derived from the otherwise differentiated forms, like *put* vis-à-vis *did put* and *have put* or *whole-scale* vis-à-vis *full-scale* and *wholesale*.

As for those vocalizations which, like length and pitch, lend themselves to smooth gradation, it would be a most uneconomical language that made no use of SOME of their gradient possibilities.

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